

10/506997

47876.txt
SEQUENCE LISTING

0709 Rec'd PCT/PTO 04 SEP 2004

<110> ImClone Systems Incorporated
<120> Human Antibodies Specific To KDR And Uses Thereof
<130> 11245/47802
<140> To Be Assigned
<141> Herewith...2004-09-03
<150> PCT/US03/06459
<151> 2003-03-04
<150> 60/361,783
<151> 2002-03-04
<160> 93
<170> WordPerfect 8.0 for Windows

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 5 10 15

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 96
 Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Ser Tyr
 20 25 30

gct atc agc tgg gtg cga cag gcc cct gga caa ggg ctt gag tgg atg
 144
 Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
 35 40 45

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 192
 Gly Gly Ile Ile Pro Ile Phe Gly Thr Ala Asn Tyr Ala Gln Lys Phe
 50 55 60

cag ggc aga gtc act ttt acc gcg gac aaa tcc acg agt aca gcc tat
 240
 Gln Gly Arg Val Thr Phe Thr Ala Asp Lys Ser Thr Ser Thr Ala Tyr
 65 70 75 80

atg gag ttg agg agc ctg aga tct gac gac acg gcc gtg tat tac tgt
 288
 Met Glu Leu Arg Ser Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

gcg aga gga tac gat tac tat gat agt agt ggc gtg gct tcc ccc ttt
 336
 Ala Arg Gly Tyr Asp Tyr Tyr Asp Ser Ser Gly Val Ala Ser Pro Phe
 100 105 110

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 Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Ser Tyr
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Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

Gly Gly Ile Ile Pro Ile Phe Gly Thr Ala Asn Tyr Ala Gln Lys Phe
50 55 60

Gln Gly Arg Val Thr Phe Thr Ala Asp Lys Ser Thr Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Arg Ser Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

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agg gtc acc atc tct tgt tct gga agc acc tcc aac atc ggt act aat
96

Arg Val Thr Ile Ser Cys Ser Gly Ser Thr Ser Asn Ile Gly Thr Asn
20 25 30

act gca aac tgg ttc cag cag ctc cca gga acg gcc ccc aaa ctc ctc
144

Thr Ala Asn Trp Phe Gln Gln Leu Pro Gly Thr Ala Pro Lys Leu Leu
35 40 45

atc cac aat aat aat cag cgg ccc tca ggg gtc cct gac cga ttc tct
192

Ile His Asn Asn Asn Gln Arg Pro Ser Gly Val Pro Asp Arg Phe Ser
50 55 60

ggc tcc aag tct ggc acc tca gcc tcc ctg gcc atc agt ggg ctc cag
240

Gly Ser Lys Ser Gly Thr Ser Ala Ser Leu Ala Ile Ser Gly Leu Gln
65 70 75 80

tct gag gat gag gct gat tat tac tgt gca gca tgg gat gac agc ctg

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288

Ser Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Ala Trp Asp Asp Ser Leu
85 90 95

aat ggc cat tgg gtg ttc ggc gga ggg acc aag ctg acc gtc ctg
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Asn Gly His Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu
100 105 110

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Thr Ala Asn Trp Phe Gln Gln Leu Pro Gly Thr Ala Pro Lys Leu Leu
35 40 45

Ile His Asn Asn Asn Gln Arg Pro Ser Gly Val Pro Asp Arg Phe Ser
50 55 60

Gly Ser Lys Ser Gly Thr Ser Ala Ser Leu Ala Ile Ser Gly Leu Gln
65 70 75 80

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<212> DNA

<213> Human

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5 10 15

tcc ctg aga ctc tcc tgt gca gcc tct gga ttc acc ttc agt agc tat
96

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr

agc atg aac tgg gtc cgc cag gct cca ggg aag ggg ctg gag tgg gtc
144

Ser Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

tca tcc att agt agt agt agt agt tac ata tac tac gca gac tca gtg
192

Ser Ser Ile Ser Ser Ser Ser Ser Tyr Ile Tyr Tyr Ala Asp Ser Val
50 55 60

aag ggc cga ttc acc atc tcc aga gac aac gcc aag aac tca ctg tat
240

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Ser Leu Tyr
65 70 75 80

ctg caa atg aac agc ctg aga gcc gag gac acg gct gtg tat tac tgt
288

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

gcg aga gtc aca gat gct ttt gat atc tgg ggc caa ggg aca atg gtc
336

Ala Arg Val Thr Asp Ala Phe Asp Ile Trp Gly Gln Gly Thr Met Val
100 105 110

acc gtc tca agc
348

Thr Val Ser Ser
115

<210> 24

<211> 116

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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
20 25 30

Ser Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ser Ser Ile Ser Ser Ser Ser Ser Tyr Ile Tyr Tyr Ala Asp Ser Val
50 55 60

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Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Ser Leu Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

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100 105 110

Thr Val Ser Ser
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gaa aga gcc acc ctc tcc tgc agg gcc agt cag agt gtt agc agc tac
96

Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Tyr
20 25 30

tta gcc tgg tac caa cag aaa cct ggc cag gct ccc agg ctc ctc atc
144

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu Ile
35 40 45

tat gat tca tcc aac agg gcc act ggc atc cca gcc aga ttc agt ggc
192

Tyr Asp Ser Ser Asn Arg Ala Thr Gly Ile Pro Ala Arg Phe Ser Gly
50 55 60

agt ggg tct ggg aca gac ttc act ctc acc atc agc agc cta gag cct
240

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Glu Pro
65 70 75 80

gaa gat ttt gca act tat tac tgt cta cag cat aac act ttt cct ccg
288

Glu Asp Phe Ala Thr Tyr Tyr Cys Leu Gln His Asn Thr Phe Pro Pro
85 90 95

acg ttc ggc caa ggg acc aag gtg gaa atc aaa
321

Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys

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105

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Leu	Ala	Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Gln	Ala	Pro	Arg	Leu	Leu	Ile
		35					40					45			
Tyr	Asp	Ser	Ser	Asn	Arg	Ala	Thr	Gly	Ile	Pro	Ala	Arg	Phe	Ser	Gly
	50					55					60				
Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Thr	Ile	Ser	Ser	Leu	Glu	Pro
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Glu	Asp	Phe	Ala	Thr	Tyr	Tyr	Cys	Leu	Gln	His	Asn	Thr	Phe	Pro	Pro
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Thr	Phe	Gly	Gln	Gly	Thr	Lys	Val	Glu	Ile	Lys					
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				5				10						15	
tcc	ctg	aga	ctc	tcc	tgt	gca	gcc	tct	gga	ttc	acc	ttc	agt	agc	tat
96															
Ser	Leu	Arg	Leu	Ser	Cys	Ala	Ala	Ser	Gly	Phe	Thr	Phe	Ser	Ser	Tyr
			20					25					30		
agc	atg	aac	tgg	gtc	cgc	cag	gct	cca	ggg	aag	ggg	ctg	gag	tgg	gtc
144															
Ser	Met	Asn	Trp	Val	Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu	Glu	Trp	Val
		35					40					45			

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tca tcc att agt agt agt agt agt tac ata tac tac gca gac tca gtg
192

Ser Ser Ile Ser Ser Ser Ser Ser Tyr Ile Tyr Tyr Ala Asp Ser Val
50 55 60

aag ggc cga ttc acc atc tcc aga gac aac gcc aag aac tca ctg tat
240

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Ser Leu Tyr
65 70 75 80

ctg caa atg aac agc ctg aga gcc gag gac acg gct gtg tat tac tgt
288

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

gcg aga gtc aca gat gct ttt gat atc tgg ggc caa ggg aca atg gtc
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acc gtc tca agc

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Thr Val Ser Ser
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5 10 15

tcg atc acc atc tcc tgc gct gga acc acc act gat ctt aca tat tat
96

Ser Ile Thr Ile Ser Cys Ala Gly Thr Thr Thr Asp Leu Thr Tyr Tyr
20 25 30

gac ctt gtc tcc tgg tac caa cag cac cca ggc caa gca ccc aaa ctc
144

Asp Leu Val Ser Trp Tyr Gln Gln His Pro Gly Gln Ala Pro Lys Leu
35 40 45

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192

Val Ile Tyr Asp Gly Asn Lys Arg Pro Ser Gly Val Ser Asn Arg Phe
50 55 60

47876.txt

tct ggc tcc aag tct ggc aac acg gcc tcc ctg aca atc tct gga ctc
240

Ser Gly Ser Lys Ser Gly Asn Thr Ala Ser Leu Thr Ile Ser Gly Leu
65 70 75 80

cag gct gag gac gag gct gat tat tac tgc aac tca tat gta agc agc
288

Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Asn Ser Tyr Val Ser Ser
85 90 95

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330

Arg Phe Tyr Val Phe Gly Thr Gly Thr Lys Val Thr Val Leu
100 105 110

<210> 29

<211> 110

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<400> 29

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Ser Ile Thr Ile Ser Cys Ala Gly Thr Thr Thr Asp Leu Thr Tyr Tyr
20 25 30

Asp Leu Val Ser Trp Tyr Gln Gln His Pro Gly Gln Ala Pro Lys Leu
35 40 45

Val Ile Tyr Asp Gly Asn Lys Arg Pro Ser Gly Val Ser Asn Arg Phe
50 55 60

Ser Gly Ser Lys Ser Gly Asn Thr Ala Ser Leu Thr Ile Ser Gly Leu
65 70 75 80

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100 105 110

<210> 30

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<212> DNA

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Glu Val Gln Leu Val Gln Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
5 10 15

tcc ctg aga ctc tcc tgt gca gcc tct gga ttc acc ttc agt agc tat
96

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
20 25 30

agc atg aac tgg gtc cgc cag gct cca ggg aag ggg ctg gag tgg gtc
144

Ser Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

tca tcc att agt agt agt agt agt tac ata tac tac gca gac tca gtg
192

Ser Ser Ile Ser Ser Ser Ser Ser Tyr Ile Tyr Tyr Ala Asp Ser Val
50 55 60

aag ggc cga ttc acc atc tcc aga gac aac gcc aag gac tca ctg tat
240

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asp Ser Leu Tyr
65 70 75 80

ctg caa atg aac agc ctg aga gcc gag gac acg gct gtg tat tac tgt
288

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

gcg aga gtc aca gat gct ttt gat atc tgg ggc caa ggg aca atg gtc
336

Ala Arg Val Thr Asp Ala Phe Asp Ile Trp Gly Gln Gly Thr Met Val
100 105 110

acc gtc tca agc
348

Thr Val Ser Ser
115

<210> 31

<211> 116

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<213> Human

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Ser Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val

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35

40

45

Ser Ser Ile Ser Ser Ser Ser Ser Tyr Ile Tyr Tyr Ala Asp Ser Val
50 55 60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asp Ser Leu Tyr
65 70 75 80
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95
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100 105 110
Thr Val Ser Ser
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gac aga gtc acc atc act tgt cgg gcg agt cag ggt att agt agt cgg
96
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile Ser Ser Arg
20 25 30
tta gcc tgg tat cag cag aaa cca ggg aaa gcc cct aag ctc ctg atc
144
Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45
tat gct gca tcc agt ttg caa act ggg gtc cca tca agg ttc agc ggc
192
Tyr Ala Ala Ser Ser Leu Gln Thr Gly Val Pro Ser Arg Phe Ser Gly
50 55 60
agt gga tct ggg aca gat ttc act ctc act atc agc agc ctg cag cct
240
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80
gaa gat ttt gca act tac tat tgt caa cag gct aac agg ttc cct ccg
288
Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ala Asn Arg Phe Pro Pro

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321

Thr Phe Gly Pro Gly Thr Lys Val Asp Ile Lys
100 105

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Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile Ser Ser Arg
20 25 30

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45

Tyr Ala Ala Ser Ser Leu Gln Thr Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80

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85 90 95

Thr Phe Gly Pro Gly Thr Lys Val Asp Ile Lys
100 105

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5 10 15

agg gtc acc atc tcc tgc act ggg agc cac tcc aac ttc ggg gca gga
96

Arg Val Thr Ile Ser Cys Thr Gly Ser His Ser Asn Phe Gly Ala Gly
20 25 30

47876.txt

act gat gta cat tgg tac caa cac ctt cca gga aca gcc ccc aga ctc
144

Thr Asp Val His Trp Tyr Gln His Leu Pro Gly Thr Ala Pro Arg Leu
35 40 45

ctc att cat gga gac agt aat cgg ccc tcc ggg gtc cct gac cga ttc
192

Leu Ile His Gly Asp Ser Asn Arg Pro Ser Gly Val Pro Asp Arg Phe
50 55 60

tct ggc tcc agg tct ggc acc tca gcc tcc ctg gcc atc act ggg ctc
240

Ser Gly Ser Arg Ser Gly Thr Ser Ala Ser Leu Ala Ile Thr Gly Leu
65 70 75 80

cgg gtt gag gat gag gct gat tat tac tgt cag tcg tat gac tat ggc
288

Arg Val Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Tyr Gly
85 90 95

ctg aga ggt tgg gtg ttc ggc ggc ggg acc aag ctg acc gtc ctt
333

Leu Arg Gly Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu
100 105 110

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20 25 30

Thr Asp Val His Trp Tyr Gln His Leu Pro Gly Thr Ala Pro Arg Leu
35 40 45

Leu Ile His Gly Asp Ser Asn Arg Pro Ser Gly Val Pro Asp Arg Phe
50 55 60

Ser Gly Ser Arg Ser Gly Thr Ser Ala Ser Leu Ala Ile Thr Gly Leu
65 70 75 80

Arg Val Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Tyr Gly
85 90 95

Leu Arg Gly Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu
100 105 110

47876.txt

<210> 36
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<400> 36

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 5 10 15

gac aga gtc acc atc act tgc cgg gca agt cag aac att aac aac tat
 96
 Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Asn Ile Asn Asn Tyr
 20 25 30

tta aat tgg tat caa cag aaa cca gga aaa gcc cct aag ctc ctg atc
 144
 Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
 35 40 45

tat gct gcc tcc act ttg caa agt ggg gtc cca tca agg ttc agt ggc
 192
 Tyr Ala Ala Ser Thr Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60

agt gga tct ggg aca gat ttc act ctc acc atc acc agc cta cag cct
 240
 Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Thr Ser Leu Gln Pro
 65 70 75 80

gaa gat tct gca act tat tac tgc caa cag tat tcc cgt tat cct ccc
 288
 Glu Asp Ser Ala Thr Tyr Tyr Cys Gln Gln Tyr Ser Arg Tyr Pro Pro
 85 90 95

act ttc ggc gga ggg acc aag gtg gag atc aca
 321
 Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Thr
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<210> 37
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Asp Val Val Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
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47876.txt

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Asn Ile Asn Asn Tyr
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 Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
 35 40 45
 Tyr Ala Ala Ser Thr Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60
 Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Thr Ser Leu Gln Pro
 65 70 75 80
 Glu Asp Ser Ala Thr Tyr Tyr Cys Gln Gln Tyr Ser Arg Tyr Pro Pro
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 Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Thr
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 Gln Ser Ala Leu Thr Gln Pro Ala Ser Val Ser Gly Ser Arg Gly Gln
 5 10 15
 tcg atc acc ctc tcc tgc acc ggc tcc agc act gat gtg ggt aat tat
 96
 Ser Ile Thr Leu Ser Cys Thr Gly Ser Ser Thr Asp Val Gly Asn Tyr
 20 25 30
 aac tat atc tcc tgg tac caa caa cac cca ggc caa gcc ccc aaa ctc
 144
 Asn Tyr Ile Ser Trp Tyr Gln Gln His Pro Gly Gln Ala Pro Lys Leu
 35 40 45
 ttg att tac gat gtc act agt cgg ccc tca ggt gtt tct gat cgc ttc
 192
 Leu Ile Tyr Asp Val Thr Ser Arg Pro Ser Gly Val Ser Asp Arg Phe
 50 55 60
 tct ggc tcc aag tca ggc ctc acg gcc tcc ctg acc atc tct gga ctc
 240
 Ser Gly Ser Lys Ser Gly Leu Thr Ala Ser Leu Thr Ile Ser Gly Leu
 65 70 75 80
 cag cct gaa gac gag gct gac tat tac tgc aac tcc tat tct gcc acc

47876.txt

288

Gln Pro Glu Asp Glu Ala Asp Tyr Tyr Cys Asn Ser Tyr Ser Ala Thr
85 90 95

gac act ctt gtt ttt ggc gga ggg acc aag ctg acc gtc cta

330

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<213> Human

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Asn Tyr Ile Ser Trp Tyr Gln Gln His Pro Gly Gln Ala Pro Lys Leu
35 40 45

Leu Ile Tyr Asp Val Thr Ser Arg Pro Ser Gly Val Ser Asp Arg Phe
50 55 60

Ser Gly Ser Lys Ser Gly Leu Thr Ala Ser Leu Thr Ile Ser Gly Leu
65 70 75 80

Gln Pro Glu Asp Glu Ala Asp Tyr Tyr Cys Asn Ser Tyr Ser Ala Thr
85 90 95

Asp Thr Leu Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu
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<400> 40

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48

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5 10 15

agg gtc acc atc tcc tgc act ggg caa agc tcc aat atc ggg gca gat
96

Arg Val Thr Ile Ser Cys Thr Gly Gln Ser Ser Asn Ile Gly Ala Asp

47876.txt

20

25

30

tat gat gta cat tgg tac cag caa ttt cca gga aca gcc ccc aaa ctc
144

Tyr Asp Val His Trp Tyr Gln Gln Phe Pro Gly Thr Ala Pro Lys Leu
35 40 45

ctc atc tat ggt cac aac aat cgg ccc tca ggg gtc cct gac cga ttc
192

Leu Ile Tyr Gly His Asn Asn Arg Pro Ser Gly Val Pro Asp Arg Phe
50 55 60

tct ggc tcc aag tct ggc acc tca gtc tcc ctg gtc atc agt ggg ctc
240

Ser Gly Ser Lys Ser Gly Thr Ser Val Ser Leu Val Ile Ser Gly Leu
65 70 75 80

cag gct gag gat gag gct gat tat tat tgc cag tcc tat gac agc agt
288

Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Ser Ser
85 90 95

cta agt ggt ttg gta ttc ggc gga ggg acc aag gtg acc gtc cta
333

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100 105 110

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<211> 111

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<400> 41

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20 25 30

Tyr Asp Val His Trp Tyr Gln Gln Phe Pro Gly Thr Ala Pro Lys Leu
35 40 45

Leu Ile Tyr Gly His Asn Asn Arg Pro Ser Gly Val Pro Asp Arg Phe
50 55 60

Ser Gly Ser Lys Ser Gly Thr Ser Val Ser Leu Val Ile Ser Gly Leu
65 70 75 80

Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Ser Ser
85 90 95

47876.txt

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 100 105 110

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 5 10 15

gac agc gtc acc atc act tgt cgg gcg agt cag gat att agc agc tgg
 96

Asp Ser Val Thr Ile Thr Cys Arg Ala Ser Gln Asp Ile Ser Ser Trp
 20 25 30

tta gcc tgg tat caa cag aaa cca ggg gag gcc cct aag ctc ctg atc
 144

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Glu Ala Pro Lys Leu Leu Ile
 35 40 45

tat gct gca tcc ctt ctt caa agt ggg gtc cca tca cgg ttc agc ggc
 192

Tyr Ala Ala Ser Leu Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60

agt gga tct ggg aca gat ttc gct ctc act atc aac agc ctg cag cct
 240

Ser Gly Ser Gly Thr Asp Phe Ala Leu Thr Ile Asn Ser Leu Gln Pro
 65 70 75 80

gaa gat ttt gca act tac ttt tgt caa cag gct gac agt ttc cct ccc
 288

Glu Asp Phe Ala Thr Tyr Phe Cys Gln Gln Ala Asp Ser Phe Pro Pro
 85 90 95

acc ttc ggc caa ggg aca cgg ctg gag att aaa
 321

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<400> 43

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35 40 45

Tyr Ala Ala Ser Leu Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Asp Phe Ala Leu Thr Ile Asn Ser Leu Gln Pro
65 70 75 80

Glu Asp Phe Ala Thr Tyr Phe Cys Gln Gln Ala Asp Ser Phe Pro Pro
85 90 95

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<400> 44

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48

Asp Ile Glu Leu Thr Gln Ser Pro Ser Ser Val Ser Ala Ser Val Gly
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gac aga gtc acc ctc act tgt cgg gcg agt cag agt att aag agg tgg
96

Asp Arg Val Thr Leu Thr Cys Arg Ala Ser Gln Ser Ile Lys Arg Trp
20 25 30

tta gcc tgg tat cag cag aaa cca ggg aag gcc cct agg ctc ctc atc
144

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Arg Leu Leu Ile
35 40 45

tat gct gca tcc act ttg caa agt ggg gtc cca tca agg ttc agc ggc
192

Tyr Ala Ala Ser Thr Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

ggt gga tct ggg aca gat ttc act ctc acc atc aac agc ctg cag cct
240

Gly Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Asn Ser Leu Gln Pro
65 70 75 80

47876.txt

gaa gat ttt gca att tac tac tgt caa cag gct aac agt ttc cct ccc
288

Glu Asp Phe Ala Ile Tyr Tyr Cys Gln Gln Ala Asn Ser Phe Pro Pro
85 90 95

act ttc ggc cct ggg acc aaa gtg gat atc aaa
321

Thr Phe Gly Pro Gly Thr Lys Val Asp Ile Lys
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<213> Human

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Asp Arg Val Thr Leu Thr Cys Arg Ala Ser Gln Ser Ile Lys Arg Trp
20 25 30

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35 40 45

Tyr Ala Ala Ser Thr Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

Gly Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Asn Ser Leu Gln Pro
65 70 75 80

Glu Asp Phe Ala Ile Tyr Tyr Cys Gln Gln Ala Asn Ser Phe Pro Pro
85 90 95

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<210> 46

<211> 333

<212> DNA

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<400> 46

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agg gtc acc atc tcc tgc agt ggg agc agg tcc aac atc ggg gca cac

47876.txt

96
 Arg Val Thr Ile Ser Cys Ser Gly Ser Arg Ser Asn Ile Gly Ala His
 20 25 30
 tat gaa gtc cag tgg tac cag cag ttt ccg gga gca gcc ccc aaa ctc
 144
 Tyr Glu Val Gln Trp Tyr Gln Gln Phe Pro Gly Ala Ala Pro Lys Leu
 35 40 45
 ctc atc tat ggt gac acc aat cgg ccc tca ggg gtc cct gac cga ttc
 192
 Leu Ile Tyr Gly Asp Thr Asn Arg Pro Ser Gly Val Pro Asp Arg Phe
 50 55 60
 tct gcc tcc cac tct ggc acc tca gcc tcc ctt gcc atc aca ggg ctc
 240
 Ser Ala Ser His Ser Gly Thr Ser Ala Ser Leu Ala Ile Thr Gly Leu
 65 70 75 80
 cag gct gag gat gag gct gat tat tac tgc cag tcg tat gac acc agt
 288
 Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Thr Ser
 85 90 95
 cta cgt ggt ccg gtg ttc ggc gga ggg acc aag ctg acc gtc cta
 333
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 100 105 110

<210> 47
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<400> 47

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 20 25 30
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 35 40 45
 Leu Ile Tyr Gly Asp Thr Asn Arg Pro Ser Gly Val Pro Asp Arg Phe
 50 55 60
 Ser Ala Ser His Ser Gly Thr Ser Ala Ser Leu Ala Ile Thr Gly Leu
 65 70 75 80
 Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Thr Ser

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 100 105 110

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agg gtc acc atc tcc tgc act ggg agc agc tcc aac atc ggg aca ggt
 96

Arg Val Thr Ile Ser Cys Thr Gly Ser Ser Ser Asn Ile Gly Thr Gly
 20 25 30

tat gat gta cat tgg tac cag cag gtt cca gga tca gcc ccc aaa ctc
 144

Tyr Asp Val His Trp Tyr Gln Gln Val Pro Gly Ser Ala Pro Lys Leu
 35 40 45

ctc atc tat gct tac acc aat cgg ccc tca ggg gtc cct gac cga ttc
 192

Leu Ile Tyr Ala Tyr Thr Asn Arg Pro Ser Gly Val Pro Asp Arg Phe
 50 55 60

tct ggc tcc aag tct ggc atg tca gcc tcc ctg gtc atc ggt ggt ctc
 240

Ser Gly Ser Lys Ser Gly Met Ser Ala Ser Leu Val Ile Gly Gly Leu
 65 70 75 80

cag gct gag gat gag gct gat tat tac tgc cag tcc ttt gac gac agc
 288

Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Phe Asp Asp Ser
 85 90 95

ctg aat ggt ctt gtc ttc gga cct ggg acc tcg gtc acc gtc ctc
 333

Leu Asn Gly Leu Val Phe Gly Pro Gly Thr Ser Val Thr Val Leu
 100 105 110

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<400> 49

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Tyr	Asp	Val	His	Trp	Tyr	Gln	Gln	Val	Pro	Gly	Ser	Ala	Pro	Lys	Leu
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Ser	Gly	Ser	Lys	Ser	Gly	Met	Ser	Ala	Ser	Leu	Val	Ile	Gly	Gly	Leu
	65				70					75					80
Gln	Ala	Glu	Asp	Glu	Ala	Asp	Tyr	Tyr	Cys	Gln	Ser	Phe	Asp	Asp	Ser
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															96
Arg	Val	Thr	Ile	Ser	Cys	Thr	Gly	Ser	His	Ser	Asn	Phe	Gly	Ala	Gly
			20					25					30		
act	gat	gtc	cat	tgg	tac	caa	cac	ctt	cca	gga	aca	gcc	ccc	aga	ctc
															144
Thr	Asp	Val	His	Trp	Tyr	Gln	His	Leu	Pro	Gly	Thr	Ala	Pro	Arg	Leu
		35					40					45			
ctc	att	cat	gga	gac	act	cat	cgg	ccc	tcc	ggg	gtc	gct	gac	cga	ttc
															192
Leu	Ile	His	Gly	Asp	Thr	His	Arg	Pro	Ser	Gly	Val	Ala	Asp	Arg	Phe
	50					55					60				
tct	ggc	tcc	agg	tct	ggc	gcc	tca	gcc	tcc	ctg	gcc	atc	act	ggg	ctc
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47876.txt

Ser Gly Ser Arg Ser Gly Ala Ser Ala Ser Leu Ala Ile Thr Gly Leu
 65 70 75 80

cgg gtt gag gat gag gct gat tat tac tgt cag tcg tat gac tat ggc
 288

Arg Val Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Tyr Gly
 85 90 95

ctg aga ggt tgg gtg ttc ggc ggc ggg acc aag ctg acc gtc ctt
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 100 105 110

<210> 51

<211> 111

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<213> Human

<400> 51

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 20 25 30

Thr Asp Val His Trp Tyr Gln His Leu Pro Gly Thr Ala Pro Arg Leu
 35 40 45

Leu Ile His Gly Asp Thr His Arg Pro Ser Gly Val Ala Asp Arg Phe
 50 55 60

Ser Gly Ser Arg Ser Gly Ala Ser Ala Ser Leu Ala Ile Thr Gly Leu
 65 70 75 80

Arg Val Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Tyr Gly
 85 90 95

Leu Arg Gly Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu
 100 105 110

<210> 52

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<400> 52

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96

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile Asp Asn Trp
20 25 30

tta ggc tgg tat cag cag aaa cct ggg aaa gcc cct aaa ctc ctg atc
144

Leu Gly Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45

tac gat gca tcc aat ttg gac aca ggg gtc cca tca agg ttc agt gga
192

Tyr Asp Ala Ser Asn Leu Asp Thr Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

agt gga tct ggg aca tat ttt act ctc acc atc agt agc ctg caa gct
240

Ser Gly Ser Gly Thr Tyr Phe Thr Leu Thr Ile Ser Ser Leu Gln Ala
65 70 75 80

gaa gat ttt gca gtt tat ttc tgt caa cag gct aaa gct ttt cct ccc
288

Glu Asp Phe Ala Val Tyr Phe Cys Gln Gln Ala Lys Ala Phe Pro Pro
85 90 95

act ttc ggc gga ggg acc aag gtg gac atc aaa
321

Thr Phe Gly Gly Gly Thr Lys Val Asp Ile Lys
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35 40 45

Tyr Asp Ala Ser Asn Leu Asp Thr Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

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Gln Gln Ala Asp Ser Phe Pro Pro Thr
Page 31

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107
Met Gln Ser Lys Val Leu Leu Ala Val Ala Leu Trp Leu Cys Val Glu
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155
Thr Arg Ala Ala Ser Val Gly Leu Pro Ser Val Ser Leu Asp Leu Pro
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agg ctc agc ata caa aaa gac ata ctt aca att aag gct aat aca act
203
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35 40 45

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251
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50 55 60

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299
Asn Asn Gln Ser Gly Ser Glu Gln Arg Val Glu Val Thr Glu Cys Ser
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347
Asp Gly Leu Phe Cys Lys Thr Leu Thr Ile Pro Lys Val Ile Gly Asn
85 90 95

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395
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100 105 110

gtc att tat gtc tat gtt caa gat tac aga tct cca ttt att gct tct
443
Val Ile Tyr Val Tyr Val Gln Asp Tyr Arg Ser Pro Phe Ile Ala Ser
115 120 125

gtt agt gac caa cat gga gtc gtg tac att act gag aac aaa aac aaa
491
Val Ser Asp Gln His Gly Val Val Tyr Ile Thr Glu Asn Lys Asn Lys
130 135 140

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635
Ile Ser Trp Asp Ser Lys Lys Gly Phe Thr Ile Pro Ser Tyr Met Ile
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683
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731
Tyr Gln Ser Ile Met Tyr Ile Val Val Val Val Gly Tyr Arg Ile Tyr
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779
Asp Val Val Leu Ser Pro Ser His Gly Ile Glu Leu Ser Val Gly Glu
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Lys Leu Val Leu Asn Cys Thr Ala Arg Thr Glu Leu Asn Val Gly Ile
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875
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Val Asn Arg Asp Leu Lys Thr Gln Ser Gly Ser Glu Met Lys Lys Phe
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971
Leu Ser Thr Leu Thr Ile Asp Gly Val Thr Arg Ser Asp Gln Gly Leu
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Tyr Thr Cys Ala Ala Ser Ser Gly Leu Met Thr Lys Lys Asn Ser Thr

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	Phe	Val	Arg	Val	His	Glu	Lys	Pro	Phe	Val	Ala	Phe	Gly	Ser	Gly	Met
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1115	gaa	tct	ctg	gtg	gaa	gcc	acg	gtg	ggg	gag	cgt	gtc	aga	atc	cct	gcg
	Glu	Ser	Leu	Val	Glu	Ala	Thr	Val	Gly	Glu	Arg	Val	Arg	Ile	Pro	Ala
				340					345					350		
1163	aag	tac	ctt	ggg	tac	cca	ccc	cca	gaa	ata	aaa	tgg	tat	aaa	aat	gga
	Lys	Tyr	Leu	Gly	Tyr	Pro	Pro	Pro	Glu	Ile	Lys	Trp	Tyr	Lys	Asn	Gly
			355					360					365			
1211	ata	ccc	ctt	gag	tcc	aat	cac	aca	att	aaa	gcg	ggg	cat	gta	ctg	acg
	Ile	Pro	Leu	Glu	Ser	Asn	His	Thr	Ile	Lys	Ala	Gly	His	Val	Leu	Thr
		370					375					380				
1259	att	atg	gaa	gtg	agt	gaa	aga	gac	aca	gga	aat	tac	act	gtc	atc	ctt
	Ile	Met	Glu	Val	Ser	Glu	Arg	Asp	Thr	Gly	Asn	Tyr	Thr	Val	Ile	Leu
	385					390					395					400
1307	acc	aat	ccc	att	tca	aag	gag	aag	cag	agc	cat	gtg	gtc	tct	ctg	gtt
	Thr	Asn	Pro	Ile	Ser	Lys	Glu	Lys	Gln	Ser	His	Val	Val	Ser	Leu	Val
					405					410					415	
1355	gtg	tat	gtc	cca	ccc	cag	att	ggg	gag	aaa	tct	cta	atc	tct	cct	gtg
	Val	Tyr	Val	Pro	Pro	Gln	Ile	Gly	Glu	Lys	Ser	Leu	Ile	Ser	Pro	Val
				420					425					430		
1403	gat	tcc	tac	cag	tac	ggc	acc	act	caa	acg	ctg	aca	tgt	acg	gtc	tat
	Asp	Ser	Tyr	Gln	Tyr	Gly	Thr	Thr	Gln	Thr	Leu	Thr	Cys	Thr	Val	Tyr
			435					440					445			
1451	gcc	att	cct	ccc	ccg	cat	cac	atc	cac	tgg	tat	tgg	cag	ttg	gag	gaa
	Ala	Ile	Pro	Pro	Pro	His	His	Ile	His	Trp	Tyr	Trp	Gln	Leu	Glu	Glu
		450					455					460				
1499	gag	tgc	gcc	aac	gag	ccc	agc	cat	gct	gtc	tca	gtg	aca	aac	cca	tac
	Glu	Cys	Ala	Asn	Glu	Pro	Ser	His	Ala	Val	Ser	Val	Thr	Asn	Pro	Tyr
	465					470					475					480

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cct tgt gaa gaa tgg aga agt gtg gag gac ttc cag gga gga aat aaa
 1547
 Pro Cys Glu Glu Trp Arg Ser Val Glu Asp Phe Gln Gly Gly Asn Lys
 485 490 495

att gaa gtt aat aaa aat caa ttt gct cta att gaa gga aaa aac aaa
 1595
 Ile Glu Val Asn Lys Asn Gln Phe Ala Leu Ile Glu Gly Lys Asn Lys
 500 505 510

act gta agt acc ctt gtt atc caa gcg gca aat gtg tca gct ttg tac
 1643
 Thr Val Ser Thr Leu Val Ile Gln Ala Ala Asn Val Ser Ala Leu Tyr
 515 520 525

aaa tgt gaa gcg gtc aac aaa gtc ggg aga gga gag agg gtg atc tcc
 1691
 Lys Cys Glu Ala Val Asn Lys Val Gly Arg Gly Glu Arg Val Ile Ser
 530 535 540

ttc cac gtg acc agg ggt cct gaa att act ttg caa cct gac atg cag
 1739
 Phe His Val Thr Arg Gly Pro Glu Ile Thr Leu Gln Pro Asp Met Gln
 545 550 555 560

ccc act gag cag gag agc gtg tct ttg tgg tgc act gca gac aga tct
 1787
 Pro Thr Glu Gln Glu Ser Val Ser Leu Trp Cys Thr Ala Asp Arg Ser
 565 570 575

acg ttt gag aac ctc aca tgg tac aag ctt ggc cca cag cct ctg cca
 1835
 Thr Phe Glu Asn Leu Thr Trp Tyr Lys Leu Gly Pro Gln Pro Leu Pro
 580 585 590

atc cat gtg gga gag ttg ccc aca cct gtt tgc aag aac ttg gat act
 1883
 Ile His Val Gly Glu Leu Pro Thr Pro Val Cys Lys Asn Leu Asp Thr
 595 600 605

ctt tgg aaa ttg aat gcc acc atg ttc tct aat agc aca aat gac att
 1931
 Leu Trp Lys Leu Asn Ala Thr Met Phe Ser Asn Ser Thr Asn Asp Ile
 610 615 620

ttg atc atg gag ctt aag aat gca tcc ttg cag gac caa gga gac tat
 1979
 Leu Ile Met Glu Leu Lys Asn Ala Ser Leu Gln Asp Gln Gly Asp Tyr
 625 630 635 640

gtc tgc ctt gct caa gac agg aag acc aag aaa aga cat tgc gtg gtc
 2027

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Val Cys Leu Ala Gln Asp Arg Lys Thr Lys Lys Arg His Cys Val Val
645 650 655

agg cag ctc aca gtc cta gag cgt gtg gca ccc acg atc aca gga aac
2075

Arg Gln Leu Thr Val Leu Glu Arg Val Ala Pro Thr Ile Thr Gly Asn
660 665 670

ctg gaa aat cag acg aca agt att ggg gaa agc atc gaa gtc tca tgc
2123

Leu Glu Asn Gln Thr Thr Ser Ile Gly Glu Ser Ile Glu Val Ser Cys
675 680 685

acg gca tct ggg aat ccc cct cca cag atc atg tgg tat aaa gat aat
2171

Thr Ala Ser Gly Asn Pro Pro Pro Gln Ile Met Trp Phe Lys Asp Asn
690 695 700

gag acc ctt gta gaa gac tca ggc att gta ttg aag gat ggg aac cgg
2219

Glu Thr Leu Val Glu Asp Ser Gly Ile Val Leu Lys Asp Gly Asn Arg
705 710 715 720

aac ctc act atc cgc aga gtg agg aag gag gac gaa ggc ctc tac acc
2267

Asn Leu Thr Ile Arg Arg Val Arg Lys Glu Asp Glu Gly Leu Tyr Thr
725 730 735

tgc cag gca tgc agt gtt ctt ggc tgt gca aaa gtg gag gca ttt ttc
2315

Cys Gln Ala Cys Ser Val Leu Gly Cys Ala Lys Val Glu Ala Phe Phe
740 745 750

ata ata gaa ggt gcc cag gaa aag acg aac ttg gaa
2351

Ile Ile Glu Gly Ala Gln Glu Lys Thr Asn Leu Glu
755 760

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<211> 764
<212> PRT
<213> Human

<400> 85

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Thr Arg Ala Ala Ser Val Gly Leu Pro Ser Val Ser Leu Asp Leu Pro
20 25 30

Arg Leu Ser Ile Gln Lys Asp Ile Leu Thr Ile Lys Ala Asn Thr Thr

Leu	Gln	Ile	Thr	Cys	Arg	Gly	Gln	Arg	Asp	Leu	Asp	Trp	Leu	Trp	Pro
50						55				60					
Asn	Asn	Gln	Ser	Gly	Ser	Glu	Gln	Arg	Val	Glu	Val	Thr	Glu	Cys	Ser
65					70					75					80
Asp	Gly	Leu	Phe	Cys	Lys	Thr	Leu	Thr	Ile	Pro	Lys	Val	Ile	Gly	Asn
				85					90					95	
Asp	Thr	Gly	Ala	Tyr	Lys	Cys	Phe	Tyr	Arg	Glu	Thr	Asp	Leu	Ala	Ser
			100					105					110		
Val	Ile	Tyr	Val	Tyr	Val	Gln	Asp	Tyr	Arg	Ser	Pro	Phe	Ile	Ala	Ser
		115					120					125			
Val	Ser	Asp	Gln	His	Gly	Val	Val	Tyr	Ile	Thr	Glu	Asn	Lys	Asn	Lys
	130					135					140				
Thr	Val	Val	Ile	Pro	Cys	Leu	Gly	Ser	Ile	Ser	Asn	Leu	Asn	Val	Ser
145					150					155					160
Leu	Cys	Ala	Arg	Tyr	Pro	Glu	Lys	Arg	Phe	Val	Pro	Asp	Gly	Asn	Arg
				165					170					175	
Ile	Ser	Trp	Asp	Ser	Lys	Lys	Gly	Phe	Thr	Ile	Pro	Ser	Tyr	Met	Ile
			180					185					190		
Ser	Tyr	Ala	Gly	Met	Val	Phe	Cys	Glu	Ala	Lys	Ile	Asn	Asp	Glu	Ser
		195					200					205			
Tyr	Gln	Ser	Ile	Met	Tyr	Ile	Val	Val	Val	Val	Gly	Tyr	Arg	Ile	Tyr
	210					215					220				
Asp	Val	Val	Leu	Ser	Pro	Ser	His	Gly	Ile	Glu	Leu	Ser	Val	Gly	Glu
225					230					235					240
Lys	Leu	Val	Leu	Asn	Cys	Thr	Ala	Arg	Thr	Glu	Leu	Asn	Val	Gly	Ile
				245					250					255	
Asp	Phe	Asn	Trp	Glu	Tyr	Pro	Ser	Ser	Lys	His	Gln	His	Lys	Lys	Leu
			260					265					270		
Val	Asn	Arg	Asp	Leu	Lys	Thr	Gln	Ser	Gly	Ser	Glu	Met	Lys	Lys	Phe
		275					280					285			
Leu	Ser	Thr	Leu	Thr	Ile	Asp	Gly	Val	Thr	Arg	Ser	Asp	Gln	Gly	Leu
	290					295					300				
Tyr	Thr	Cys	Ala	Ala	Ser	Ser	Gly	Leu	Met	Thr	Lys	Lys	Asn	Ser	Thr
305					310					315					320

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Phe	Val	Arg	Val	His	Glu	Lys	Pro	Phe	Val	Ala	Phe	Gly	Ser	Gly	Met	325	330	335	
Glu	Ser	Leu	Val	Glu	Ala	Thr	Val	Gly	Glu	Arg	Val	Arg	Ile	Pro	Ala	340	345	350	
Lys	Tyr	Leu	Gly	Tyr	Pro	Pro	Pro	Glu	Ile	Lys	Trp	Tyr	Lys	Asn	Gly	355	360	365	
Ile	Pro	Leu	Glu	Ser	Asn	His	Thr	Ile	Lys	Ala	Gly	His	Val	Leu	Thr	370	375	380	
Ile	Met	Glu	Val	Ser	Glu	Arg	Asp	Thr	Gly	Asn	Tyr	Thr	Val	Ile	Leu	385	390	395	400
Thr	Asn	Pro	Ile	Ser	Lys	Glu	Lys	Gln	Ser	His	Val	Val	Ser	Leu	Val	405	410	415	
Val	Tyr	Val	Pro	Pro	Gln	Ile	Gly	Glu	Lys	Ser	Leu	Ile	Ser	Pro	Val	420	425	430	
Asp	Ser	Tyr	Gln	Tyr	Gly	Thr	Thr	Gln	Thr	Leu	Thr	Cys	Thr	Val	Tyr	435	440	445	
Ala	Ile	Pro	Pro	Pro	His	His	Ile	His	Trp	Tyr	Trp	Gln	Leu	Glu	Glu	450	455	460	
Glu	Cys	Ala	Asn	Glu	Pro	Ser	His	Ala	Val	Ser	Val	Thr	Asn	Pro	Tyr	465	470	475	480
Pro	Cys	Glu	Glu	Trp	Arg	Ser	Val	Glu	Asp	Phe	Gln	Gly	Gly	Asn	Lys	485	490	495	
Ile	Glu	Val	Asn	Lys	Asn	Gln	Phe	Ala	Leu	Ile	Glu	Gly	Lys	Asn	Lys	500	505	510	
Thr	Val	Ser	Thr	Leu	Val	Ile	Gln	Ala	Ala	Asn	Val	Ser	Ala	Leu	Tyr	515	520	525	
Lys	Cys	Glu	Ala	Val	Asn	Lys	Val	Gly	Arg	Gly	Glu	Arg	Val	Ile	Ser	530	535	540	
Phe	His	Val	Thr	Arg	Gly	Pro	Glu	Ile	Thr	Leu	Gln	Pro	Asp	Met	Gln	545	550	555	560
Pro	Thr	Glu	Gln	Glu	Ser	Val	Ser	Leu	Trp	Cys	Thr	Ala	Asp	Arg	Ser	565	570	575	
Thr	Phe	Glu	Asn	Leu	Thr	Trp	Tyr	Lys	Leu	Gly	Pro	Gln	Pro	Leu	Pro	580	585	590	

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Ile	His	Val	Gly	Glu	Leu	Pro	Thr	Pro	Val	Cys	Lys	Asn	Leu	Asp	Thr		
		595					600					605					
Leu	Trp	Lys	Leu	Asn	Ala	Thr	Met	Phe	Ser	Asn	Ser	Thr	Asn	Asp	Ile		
	610					615					620						
Leu	Ile	Met	Glu	Leu	Lys	Asn	Ala	Ser	Leu	Gln	Asp	Gln	Gly	Asp	Tyr		
625					630					635					640		
Val	Cys	Leu	Ala	Gln	Asp	Arg	Lys	Thr	Lys	Lys	Arg	His	Cys	Val	Val		
				645					650					655			
Arg	Gln	Leu	Thr	Val	Leu	Glu	Arg	Val	Ala	Pro	Thr	Ile	Thr	Gly	Asn		
			660					665						670			
Leu	Glu	Asn	Gln	Thr	Thr	Ser	Ile	Gly	Glu	Ser	Ile	Glu	Val	Ser	Cys		
		675					680					685					
Thr	Ala	Ser	Gly	Asn	Pro	Pro	Pro	Gln	Ile	Met	Trp	Phe	Lys	Asp	Asn		
	690					695					700						
Glu	Thr	Leu	Val	Glu	Asp	Ser	Gly	Ile	Val	Leu	Lys	Asp	Gly	Asn	Arg		
705					710					715					720		
Asn	Leu	Thr	Ile	Arg	Arg	Val	Arg	Lys	Glu	Asp	Glu	Gly	Leu	Tyr	Thr		
				725					730					735			
Cys	Gln	Ala	Cys	Ser	Val	Leu	Gly	Cys	Ala	Lys	Val	Glu	Ala	Phe	Phe		
			740					745					750				
Ile	Ile	Glu	Gly	Ala	Gln	Glu	Lys	Thr	Asn	Leu	Glu						
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<223> amplification primer for VEGF

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20

<210> 87

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<223> amplification primer for VEGF

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cctgggtgaga gatctgggttc
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<210> 88

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<223> amplification primer for Flt-1

<400> 88

tttgtgattt tggccttgc
19

<210> 89

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